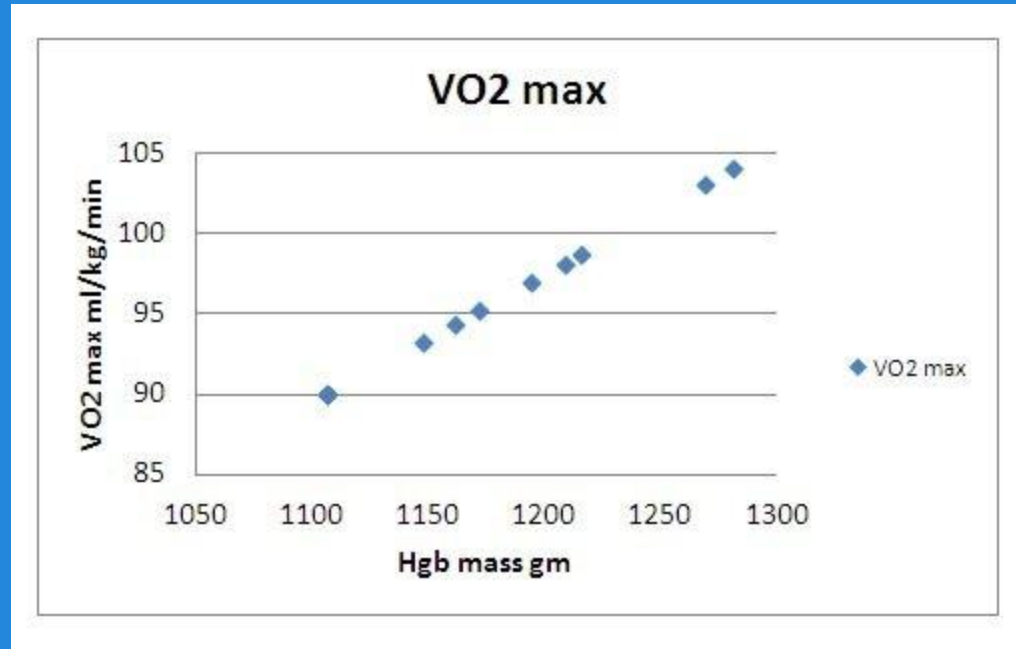
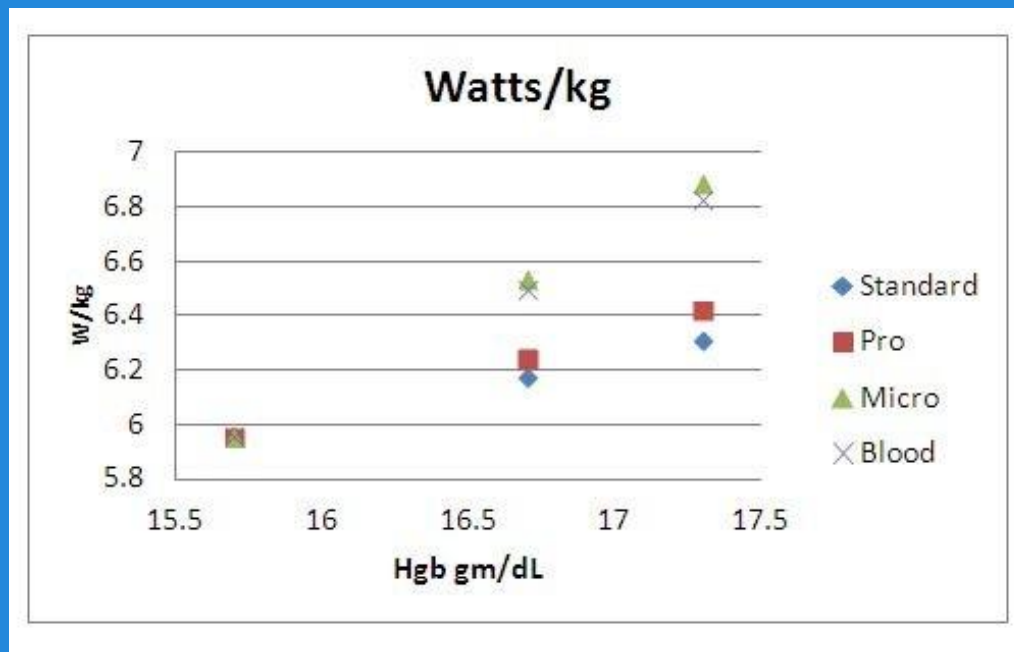


O2 Boost!

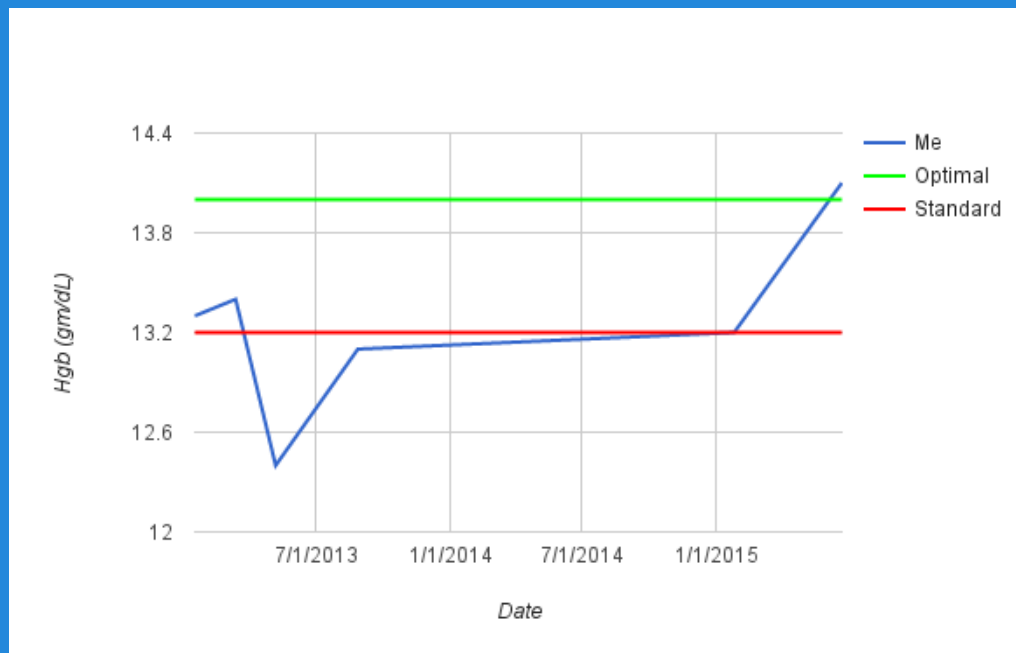




Dr Michael Puchowicz, MD is a board certified sports medicine physician currently practicing in Arizona veloclinic.tumblr.com



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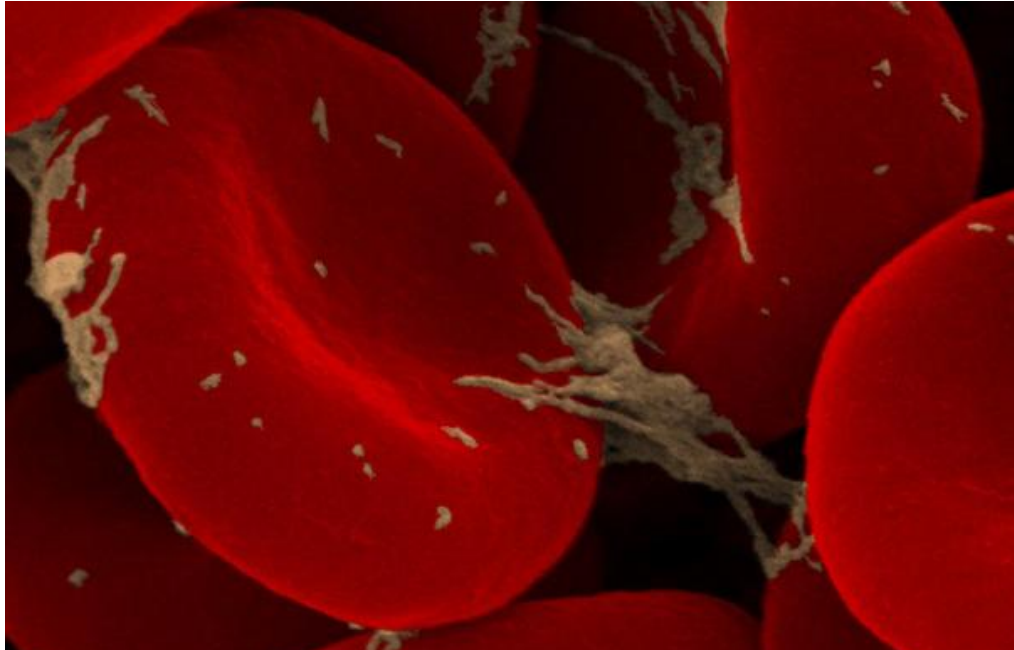


This is me!

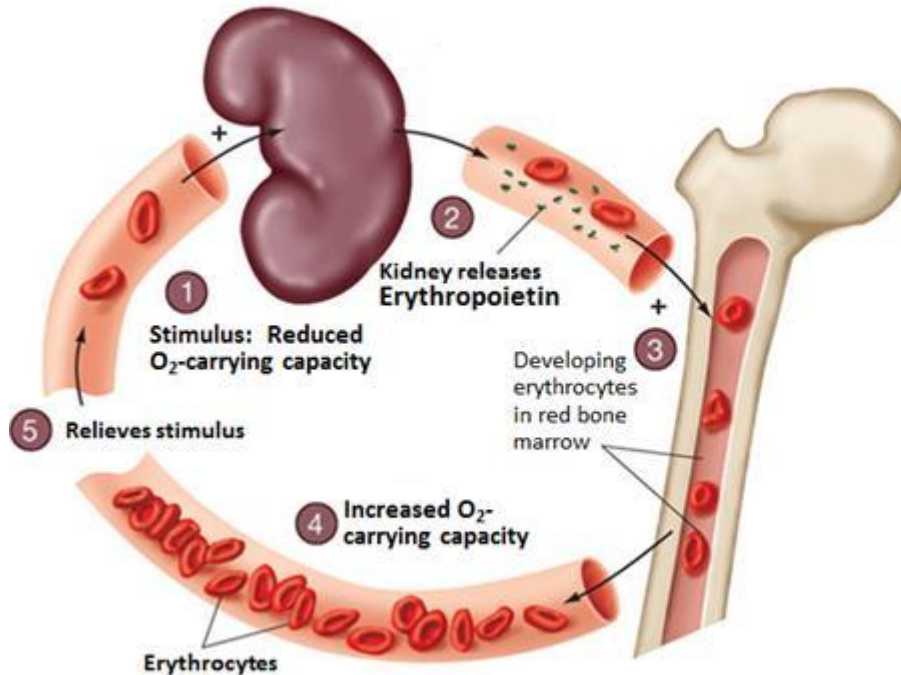


Me on the left, Dr Tommy Wood on the right. Look, no white coat!

Production, Destruction, Loss

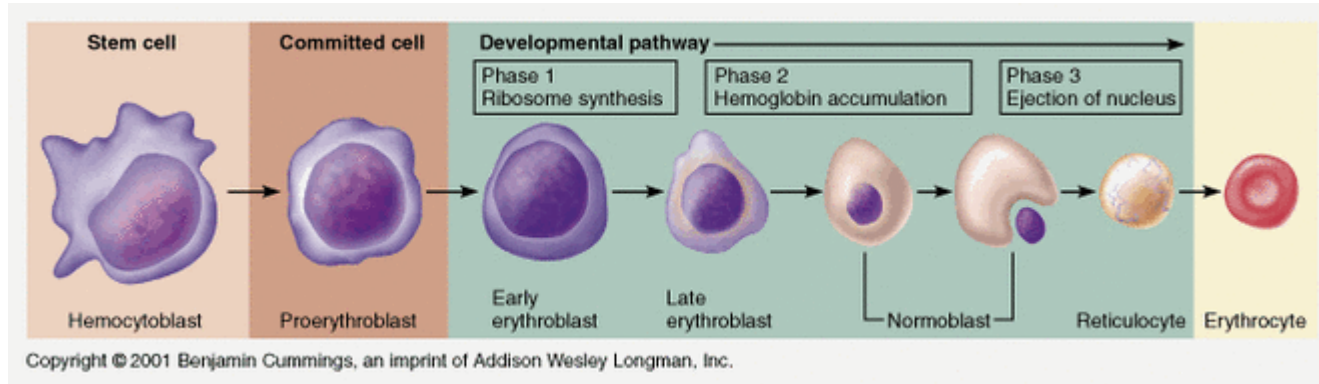


Production (erythropoiesis)



- 1** Kidneys detect reduced O₂-carrying capacity of blood
- 2** Kidneys respond by secreting erythropoietin (EPO) into the bloodstream
- 3** Erythropoietin (EPO) stimulates erythropoiesis by the bone marrow
- 4** Addition of circulating erythrocytes increase O₂-carrying capacity of the blood
- 5** Increase O₂-carrying capacity relieves the initial stimulus that triggered EPO secretion

Production (haemopoiesis)



Production (haemopoiesis)

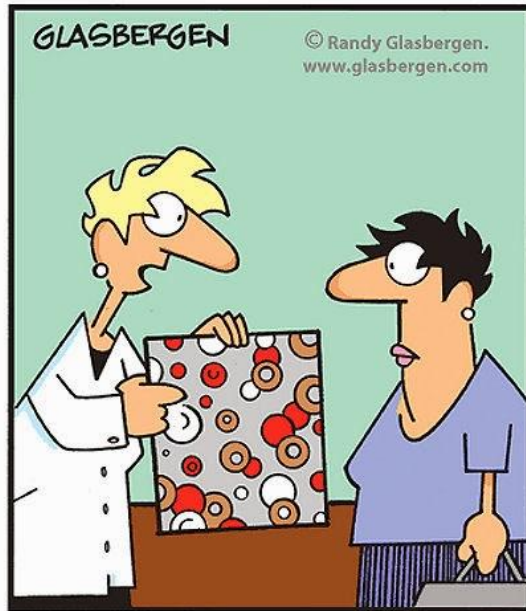
- Zinc
- B6
- B12 (methylcobalamin)
- Folate
- Iron

Methylation Cofactor Markers

(B12, Folate)



Production (haemopoiesis)



**“The red circles are your red blood cells.
The white circles are your white blood cells.
The brown circles are donuts. We need to talk.”**

"Glucose Effect" and Rate Limiting Function of Uroporphyrinogen Synthase on Porphyrin Metabolism in Hepatocyte Culture: Relationship with Human Acute Hepatic Porphyrrias

M. Doss, F. Sixel-Dietrich and F. Verspohl

Destruction

Normal lifespan approximately 120 days

“The erythrocyte represents a major component of the antioxidant capacity of the blood through the enzymes contained in the cell, the glutathione system, and the low-molecular-weight antioxidants of the erythrocyte membrane.” doi:10.1089/ars.2006.8.1205.

Oxidative Damage and Antioxidant Markers

(Vitamin C and other antioxidants)



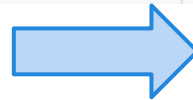
Destruction

Oxidative stress and inflammation: How are they linked?

“Continued oxidative stress can lead to chronic inflammation, which in turn could mediate most chronic diseases including cancer, diabetes, cardiovascular, neurological and pulmonary diseases.” doi: 10.1016/j.freeradbiomed.2010.09.006

High-carb, intestinal parasites

Hs CRP, Male		1.20 mg/L ↑					0.26 mg/L
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Ketogenic, bug-free

Loss

Gastrointestinal Complaints During Exercise: Prevalence, Etiology, and Nutritional Recommendations

“Most gastrointestinal symptoms during exercise are mild and of no risk to health, but hemorrhagic gastritis, hematochezia, and ischemic bowel can present serious medical challenges.” doi: 10.1007/s40279-014-0153-2.






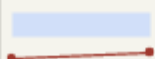
Your Test Results


	Iron deficiency	Sideroblastic (B6 deficiency?)	Chronic disease	Blood loss	B12 / folate deficiency	Pernicious anaemia
RBC	↓	↓	↓	↓	↓	↓
Haemoglobin	↓	↓	↓	↓	↓	↓
Haematocrit	↓	↓	↓	↓	↓	↓
MCV	↓	↓	N↓	N	↑	↑↑
MCH	↓	↓	N↓	N	↑	↑
MCHC	↓	↓	N↓	N	↑	↑
RDW	↑	↑	N	N	↑	↑

Your Test Results

RBC, Male		4.10 ↓↓	4.27	3.90 ↓↓	4.27		4.36	4.58
Hemoglobin, Male		13.30 ↓	13.40 ↓	12.40 ↓↓	13.10 ↓↓		13.20 ↓	14.10
Hematocrit, Male		39.40 ↓	40.30	37.70 ↓↓	39.30 ↓		40.20	42.70
MCV		96.00 ↑	94.00 ↑	97.00 ↑	92.00 ↑		92.00 ↑	93.00 ↑
MCH		32.50 ↑	31.40	31.80	30.70		30.30	30.80
MCHC		33.80	33.30	32.90	33.30		32.80	33.00
RDW		13.70 ↑	13.80 ↑	14.70 ↑	13.60 ↑		14.00 ↑	14.60 ↑

Case Study

Iron - Serum		<u>22.35</u> ↓↓		<u>33.52</u> ↓↓
Ferritin		<u>25.00</u> ↓		39.00
TIBC		<u>379.68</u> ↑		329.42
% Transferrin saturation		<u>6.00</u> ↓↓		<u>10.00</u> ↓↓

RBC, Male		<u>3.90</u> ↓↓	<u>4.00</u> ↓↓	<u>4.00</u> ↓↓
Reticulocyte count				
Hemoglobin, Male		<u>11.10</u> ↓↓	<u>11.50</u> ↓↓	<u>12.50</u> ↓↓
Hematocrit, Male		<u>36.00</u> ↓↓	<u>37.00</u> ↓↓	40.00
MCV		<u>93.00</u> ↑	<u>92.00</u> ↑	<u>98.00</u> ↑

Case Study

Carbohydrate Metabolism

L-Lactate	Very High	CoQ10, Lipoic Acid, B1, B2, B3, B5	Glucose oxidation
β -Hydroxybutyrate	Very High	Cr, V, Lipoic Acid, Mg, Mn	Ketosis

Energy Production Markers

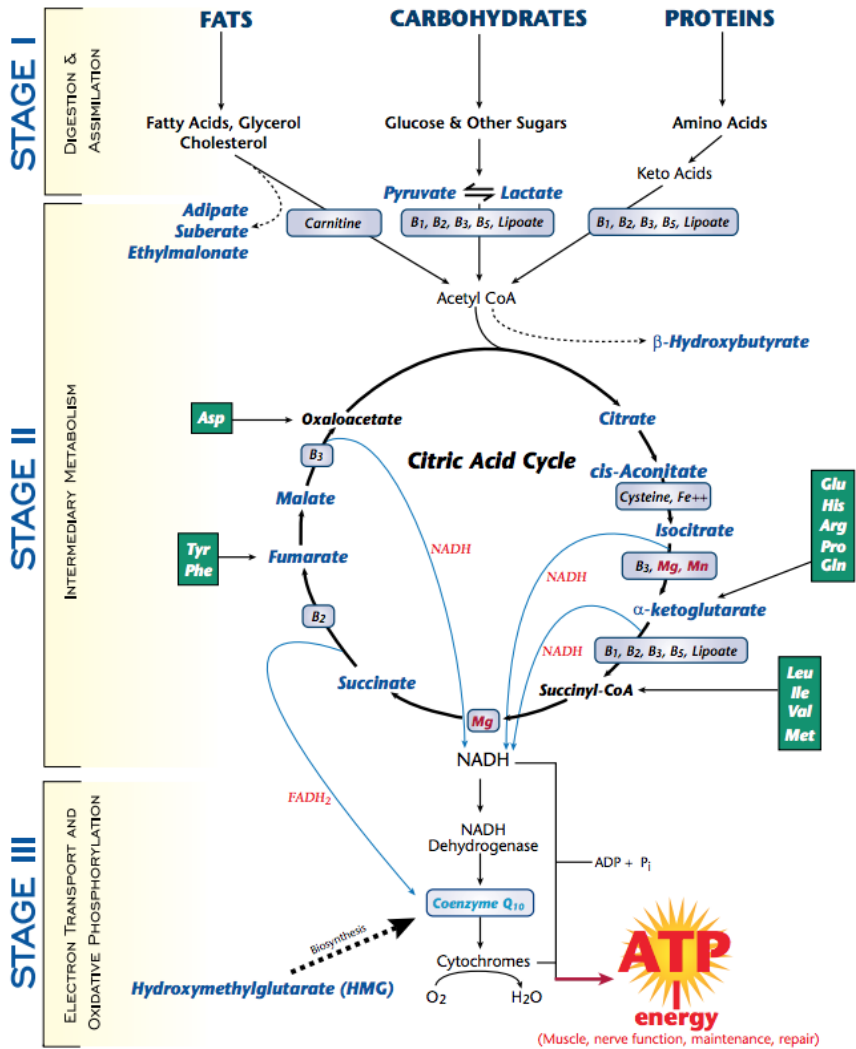
Citrate	Very High	Arginine	Renal ammonia loading
Cis-Aconitate	Very High	Arginine	Renal ammonia loading
Isocitrate	Very High	Arginine	Renal ammonia loading
α -Ketoglutarate	Very High	CoQ10, Lipoic Acid, B1, B2, B3, B5	Citric acid cycle
Succinate	Very High	CoQ10	ATP production
Fumarate	Very High	CoQ10	ATP production
Malate	Very High	CoQ10	ATP production
Hydroxymethylglutarate	Very High	CoQ10	HMG-CoA reductase inhibition

B-Complex Vitamin Markers

β -Hydroxyisovalerate	Very High	Biotin, B2	Impaired Isoleucine metabolism
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Methylation Cofactor Markers

Formiminoglutamate	Very High	Folic acid	Tetrahydrofolate insufficiency
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(Muscle, nerve function, maintenance, repair)

<http://o2boost.nourishbalancethrive.com/>

O2BOOST10

Code Expires Sunday

Code: O2BOOST10

Pricing

\$ 497


Standard

52 blood markers

Written report

30-minute 1-on-1 consultation

[Sign up](#)

\$ 847 

With organic acids

52 blood markers

46 urinary organic acid markers

Written report

30-minute 1-on-1 consultation

[Sign up](#)

\$ 197

Send your own

Send in your existing test results

Written report

30-minute 1-on-1 consultation

[Sign up](#)

Blood Markers Included

Haematocrit	Insulin	LDH	Neutrophils
Haemoglobin	BUN	Bilirubin	Lymphocytes
RBC	Creatinine	Cholesterol	Monocytes
RDW	Sodium	Triglycerides	Eosinophils
MCV	Potassium	LDL	Basophils
MCH	Chloride	HDL	
MCHC	CO2	VLDL	
Iron	Uric acid	TSH	
Ferritin	Albumin	Free T4	
% Transferrin saturation	Globulin	Free T3	
TIBC	Calcium	HS-CRP	
UIBC	Phosphorus	Vitamin D	
Folate	Alk Phos	Homocysteine	
B12	AST	Fibrinogen	
Glucose	ALT	Total WBC	
A1c	LDH	Platelets	

Organic Acid Markers Included

Adipate	α -Ketoisocaproate	Orotate
Suberate	α -Keto- β -methylvalerate	Glucarate
Ethylmalonate	Xanthurenate	α -Hydroxybutyrate
Pyruvate	β -Hydroxyisovalerate	Pyroglutamate
L-Lactate	Methylmalonate	Sulfate
β -Hydroxybutyrate	Formiminoglutamate	Benzoate
Citrate	Vanilmandelate	Hippurate
Cis-Aconitate	Homovanillate	Phenylacetate
Isocitrate	5-Hydroxyindoleacetate	Phenylpropionate
α -Ketoglutarate	Kynurenate	p-Hydroxybenzoate
Succinate	Quinolate	p-Hydroxyphenylacetate
Fumarate	Picolinate	Indican
Malate	p-Hydroxyphenyllactate	Tricarballic acid
Hydroxymethylglutarate	8-Hydroxy-2-deoxyguanosine	D-Lactate
α -Ketoisovalerate	2-Methylhippurate	3,4-Dihydroxyphenylpropionate
α -Ketoisocaproate		D-Arabinitol